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referred to cymene, even if much chemical sophistry be applied.

While from the point of view of rational chemical classification the word terpene has been much abused, like so many other chemical terms that have admirably served their purpose in times past, from a practical point of view this term is universally, though rather vaguely, understood. The same holds true of the equally abused word camphor, which is so frequently coupled with the word terpene.

The terpenes and camphors are of equal interest to the theoretical chemist and to the chemical and pharmaceutical manufacturer who deals with volatile oils and perfumes. From the very beginning of organic chemistry as a science, the volatile oils and their constituents have played an important rôle in the study of optical activity, of isomerism and of chemical constitution. On account of their subtle nature, the study of their constitution has attracted the attention of almost all organic chemists of international repute at one time or another. Whereas such substances as benzaldehyde from bitter almond oil and methyl salicylate from wintergreen oil gave satisfactory results when investigated, the former by Liebig and Woehler, the latter by Cahours—the benzaldehyde supplying even the foundation for a theory of radicles, the first structural theory of organic chemistry of lasting value—the terpenes and their derivatives, the so-called camphors, proved a stumbling block to many investigators for a long time after.

The inevitable result was that the almost innumerable unsatisfactory data which accumulated in chemical and pharmaceutical literature produced a condition well nigh chaotic. Out of this wilderness of facts, both reliable and questionable, Wallach led the way during the middle of the eighties. Flueckiger, one of the old-school investigators of the volatile oils, though advanced in years, clearly recognized the significance of Wallach's work, and called him the messiah of the terpenes. To him, therefore, this work is rightly dedicated by both author and translator.

Although Heusler has not been active experimentally in this field, he was, for several

years, Wallach's assistant in the new organic laboratory at Göttingen. Here most of Wallach's work was done by his private assistants and advanced students, who at Bonn, previous to 1889, had become known as the *Terpen-künstler*. Pond was one of the students who from far and near came to Göttingen to study with the master of the 'terpene artists.' Both are, therefore, fully competent to handle so difficult a subject.

Heusler's monograph in German came as a relief to the large number of investigators in both Europe and America who were interested in the volatile oils and the derivatives of their constituents. It at once became the indispensable reference work on the subject. Since then the investigations have continued with seemingly increased activity. Suffice it here to state that not less than several hundred independent contributions have appeared annually. If it be further remembered that the constitution of possibly not a single terpene is settled beyond reasonable doubt, the importance of the systematic arrangement of the facts accumulated since 1896 must become apparent to everyone. Dr. Pond has not only translated Heusler's monograph, but he successfully accomplished the far more difficult task of bringing it up to date.

To the American, at least, the arrangement of the chapters, subheadings and references of the translation will appeal much more strongly than that of the original German edition. The type also is larger and more satisfactory. And, last but not least, the book before us is provided with a good working index, a feature that is altogether wanting in the original. Press work and paper are of the usual excellence of the publisher.

EDWARD KREMERS.

SOCIETIES AND ACADEMIES.

AMERICAN MATHEMATICAL SOCIETY.

A REGULAR meeting of the American Mathematical Society was held at Columbia University on Saturday, October 25. About forty-five persons, including thirty-five members of the Society, were in attendance. Vice-President Maxime Bôcher presided during the

morning session, and Ex-President R. S. Woodward during the afternoon session.

The Council announced the election of the following persons to membership in the Society: Professor Sir R. S. Ball, Cambridge University, England; Dr. Otto Dunkel, Wesleyan University, Middletown, Conn.; Mr. W. H. Osborne, Purdue University, Lafayette, Ind.; Professor H. S. Rietz, Butler College, Indianapolis, Ind.; Professor J. H. Scott, Yankton College, Yankton, S. D.; Professor B. F. Yanney, Mount Union College, Alliance, Ohio; Mr. W. H. Young, M.A., Cambridge University, England; Professor I. N. Van der Vries, Kansas University, Lawrence, Kansas. Seven applications for admission to the Society were received. The Council presented a list of nominations for officers of the Society in anticipation of the annual election which occurs at the December meeting. A committee was appointed to arrange for the next summer meeting, which will be accompanied by a colloquium or series of lectures on special fields of mathematics.

The following papers were read at this meeting:

(1) DR. E. R. HEDRICK: 'On the foundations of mechanics (preliminary communication).'

(2) DR. E. V. HUNTINGTON: 'Definition of a commutative group by independent postulates.'

(3) PROFESSOR PETER FIELD: 'On the infinite branches of plane curves which have no point singularities.'

(4) DR. EDWARD KASNER: 'The apolarity of double binary forms.'

(5) PROFESSOR MAXIME BÔCHER: 'An application of the Riemann-Darboux generalization of Green's theorem.'

(6) PROFESSOR MAXIME BÔCHER: 'Note on Laplace's equation.'

(7) DR. VIRGIL SNYDER: 'On the quintic scrolls having three double conics.'

(8) MISS I. M. SCHOTTENFELS: 'Note on the types of groups of order p^n every element of which, except identity, is of order p (preliminary communication).'

(9) DR. L. P. EISENHART: 'Surfaces referred to their lines of length zero.'

(10) PROFESSOR L. E. DICKSON: 'Three sets of generational relations defining the abstract simple group of order 504.'

(11) PROFESSOR L. E. DICKSON: 'Generational relations defining the abstract simple group of order 660.'

(12) DR. G. H. LING: 'The approximate representation of a function by means of functions defined by quadratic equations.'

(13) DR. C. N. HASKINS: 'On the invariant of differential forms of degree higher than two.'

After the meeting several of the members dined and spent the evening together.

The next meeting of the Society, on December 29-30, will be the annual meeting for the election of officers and delivery of the presidential address.

F. N. COLE,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE CARNEGIE INSTITUTION.

IN the discussion of the Carnegie Institution in recent numbers of *SCIENCE*, sight has apparently been lost, in a number of cases, of the fact that the participant in the discussion is not endowing a novel institution and laying down its general plans. That part of the work has been admirably performed by Mr. Carnegie, and a repeated return to first principles by recalling the text of Carnegie's plans is not out of place.

One of the objects of the institution is clearly set out to be 'to discover the exceptional man and enable him to make the work for which he seems specially designed his life work.' Of course we each and every one recognize ourselves at once as having been especially referred to in this statement, and clearly this and that other fellow could not possibly have been meant. Among those who certainly could not have been meant are the ones who 'shall of course look out for' their 'share of the spoils.' Newly hatched schemes and plans thought of to help use the income do not commend themselves.

The thought so well expressed by Carnegie in the portion of one of his sentences quoted above and so lucidly put by Sternberg: "In my opinion a considerable portion of the income should be used in assisting individuals who have demonstrated their fitness for research work to some special field of investigation, who have a definite object in view and well-considered plans for attacking the prob-